

REMARKS

This amendment is in response to the final Office Action of December 9, 2003.

Claims 1, 2, 4, 6 through 13, 15, 17 through 23, 25, 27 through 33, 35, 37 through 45, 47, 49 through 51, 53, 55 through 58, 60, 62, 64 through 67 and 71 through 84 are currently pending in the application.

Claims 1, 2, 8-13, 15, 19-23, 25, 29, 33, 35, 44-45, 47, 51, 53, 76, and 77 have been amended. Dependent claims 2, 8-11, 13, 15, 19-22, 25, 29, 35, 44, 47, 53, and 77 to change the claim dependency, further define the scope thereof, or both. Claims 57-58, 60, 62, 64-67, and 71-75 have been canceled in this Office Action response.

35 U.S.C. § 112 Claim Rejections

Claims 1, 2, 4, 6 through 13, 15, 17 through 23, 25, 27 through 33, 35, 37 through 45, 47, 49 through 51, 53, 55, 56 and 76 through 84 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants have amended the claimed invention as suggested by the Examiner for the presently claimed invention to particularly point out and distinctly claim the subject matter of the invention to comply with the provisions of 35 U.S.C. § 112. Therefore, presently amended claims 1, 2, 4, 6 through 13, 15, 17 through 23, 25, 27 through 33, 35, 37 through 45, 47, 49 through 51, 53, 55, 56 and 76 through 84 are allowable under the provisions of 35 U.S.C. § 112.

35 U.S.C. § 103(a) Rejections

Obviousness Rejection Based on Satoh (U.S. Patent 6,338,980) in view of Bennett et al. (U.S. Patent 6,478,918)

Claims 1, 2, 4, 6, 10 through 13, 15, 17, 21 through 23, 25, 27, 31 through 33, 35, 37, 41 through 45, 47, 49, 51, 53, 55, 57, 58, 60, 62, 64, 66, 67, 71 through 73, 76 through 79, 83 and 84 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Satoh (U.S. Patent 6,338,980) in view of Bennett et al. (U.S. Patent 6,478,918). Applicants respectfully request reconsideration of this rejection, in view of the amendments to the above claims.

Applicants further submit that to establish a *prima facie* case of obviousness under 35 U.S.C. § 103 three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicants' disclosure.

After carefully considering the cited prior art, the rejections, and the Examiner's comments, Applicants have amended the claimed invention to clearly distinguish over the cited prior art.

The Satoh Patent discloses a method of forming IC chips from a bulk wafer. With particular reference to FIGs. 1A-1E, in FIG. 1A, an IC wafer 1 having solder bumps 2 on the active face 1A is shown. (Column 5, lines 42-47). In FIG. 1B, a first adhesive tape 3A is adhered to the inactive face 1B of the IC wafer 1. (Column 5, lines 51-53). Grooves 4 are formed in the active face 1A and are filled with a protective resin 5. (Column 5, line 63 to Column 6, line 3). When the grooves 4 are formed, first adhesive tape 3A is attached to a table of a groove forming apparatus by vacuum attraction. (Column 5, lines 63-66). With reference to FIG. 1C, the first adhesive tape 3A is removed and a second adhesive tape 3B is applied active face 1A including the protective resin 5. (Column 6, lines 7-12). The second adhesive tape 3B is attached to a table of a grinding apparatus by vacuum attraction. (Column 6, lines 15-17). The inactive face 1B is ground with a grinding stone 6 to expose the protective resin 5 in the grooves 4. (Column 6, lines 18-20). By grinding through the remaining portion of the IC wafer 1 in the grooves 4, IC chips 15 are formed. (FIG. 1C; Column 6, lines 20-22).

The Satoh Patent fails to teach or suggest several claim limitations in presently amended independent claims 1, 12, 23, 33, 45, 51, and 76. For instance, with regard to presently amended independent claims 1, 33, 45, and 51 the Satoh Patent does not teach or suggest "cutting said wafer to form at least one semiconductor die after said removing wafer material from said back surface." With regard to presently amended independent claims 12 and 23, the Satoh Patent does

not teach or suggest “cutting said wafer to form at least one semiconductor die after said removing wafer material from said another surface.” With regard to presently amended independent claim 76, the Satoh Patent does not teach or suggest “cutting said wafer to form a plurality of semiconductor dies after said removing wafer material from said back surface.” The Satoh Patent fails to teach or suggest a separate act of cutting the IC wafer 1 to singulate into individual dies after removing material from the back surface of the IC wafer 1.

Furthermore, there is no motivation to modify the disclosure of the Satoh Patent to perform the above mentioned limitations. There is no reason for the Satoh Patent to perform a separate cutting act to form at least one semiconductor die after removing wafer material from the back surface. This is because after the Satoh Patent removes wafer material from the back surface, IC chips 15 (i.e., semiconductor dies) are formed. (See, FIG. 1C). There is no need for a separate cutting act to form the IC chips 15. While, the Satoh Patent performs cutting through the protective resin 5 after the IC chips 15 are already formed (as illustrated in FIGs. 1D and 1E), it does not perform any cutting of the IC wafer 1 after having removed material therefrom. Therefore, presently amended independent claims 1, 12, 23, 33, 45, 51, and 76 and claims depending therefrom are nonobvious.

Obviousness Rejection Based on Satoh (U.S. Patent 6,338,980) in view of Bennett et al. (U.S. Patent 6,478,918) as applied above, and further in view of the admitted prior art

Claims 7 through 9, 18 through 20, 28 through 30, 38 through 40, 50, 56, 65, 74, 75 and 80 though 82 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Satoh (U.S. Patent 6,338,980) in view of Bennett et al. (U.S. Patent 6,478,918) as applied above, and further in view of the admitted prior art. Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants submit that claims 7 through 9, 18 through 20, 28 through 30, 38 through 40, 50, 56, 65, 74, 75 and 80 though 82 are nonobvious for at least depending from a nonobvious independent claim.

CONCLUSION

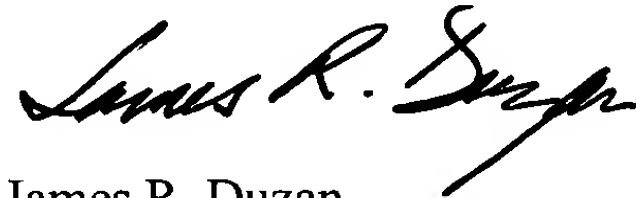
Applicants submit that claims 1, 2, 4, 6 through 13, 15, 17 through 23, 25, 27 through 33, 35, 37 through 45, 47, 49 through 51, 53, 55 through 58, 60, 62, 64 through 67 and 71 through 84 are clearly allowable over the cited prior art. Applicants request the allowance of claims 1, 2, 4, 6 through 13, 15, 17 through 23, 25, 27 through 33, 35, 37 through 45, 47, 49 through 51, 53, 55 through 58, 60, 62, 64 through 67 and 71 through 84 and the case passed for issue.

The amendments should be entered for the following reasons.

(1) The claims as amended avoid the rejection set forth in the office action.

(2) No new matter is presented in the amendments as the amends clearly comply with the provisions of 35 U.S.C. § 132. Support for the above amendments is present in Paragraphs 0037-0039 of the Applicants' Specification.

Respectfully submitted,



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